

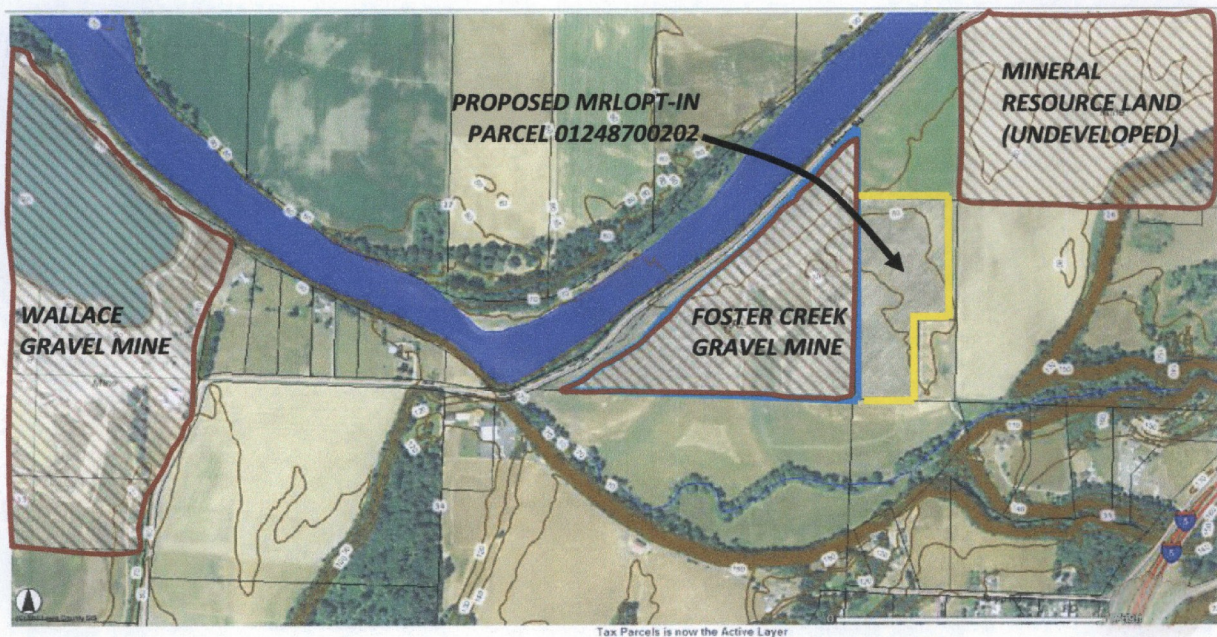
March 2, 2014

Lemmie Rockford  
Eagle Cliff Northwest LLC  
1902 E State Route 4  
Cathlamet, WA 98612



**RE: Site Evaluation for Gravel Mine Expansion**  
Application for Resource Land Opt-In  
Toledo, Lewis County, Washington  
Parcels: 012524000000 (40 acres), 012487002002 (17 acres)

Per your recent authorization, Strata Design LLC (STRATA) is providing this site evaluation as a part of your current application for a Resource Land Opt-In for expanding your current Foster Creek gravel located at 528 Mandy Road. As governed under Lewis County Code (LCC) 17.30.720, the primary purpose of this evaluation is to report on potential mineral resource (gravel and sand) valuation for the proposed opt-in or rezoned land. The current mine of approximately 40 acres, and the adjoining parcel proposed for rezoning (resource land opt-in) of approximately 17 acres are shown on the map inset below.

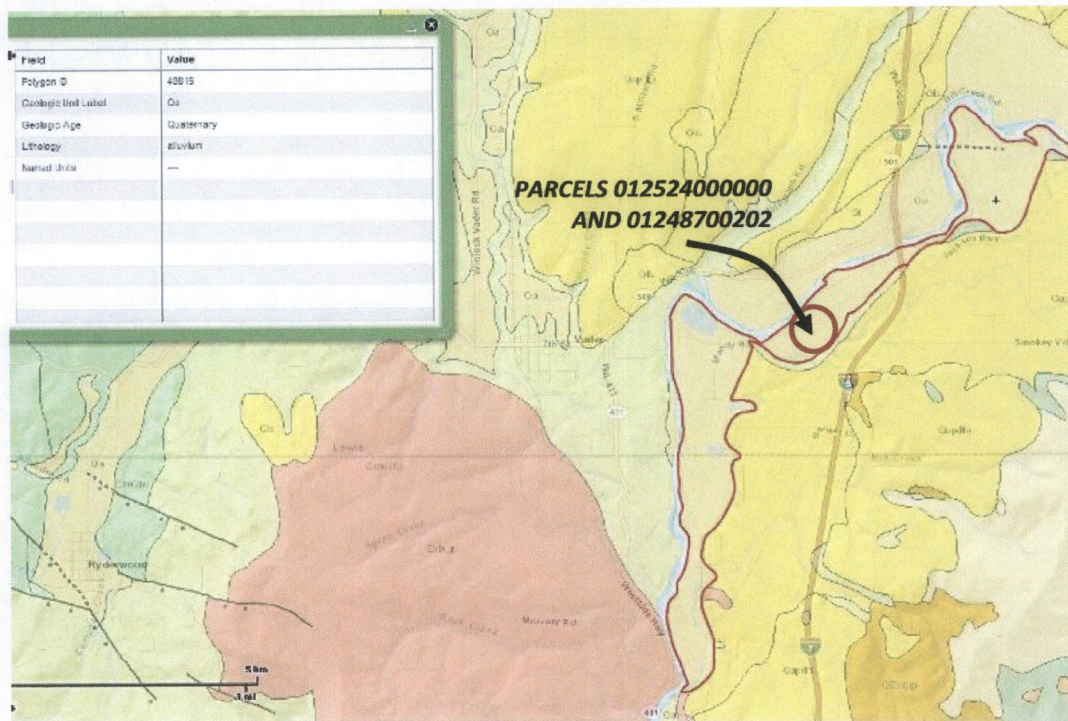


The existing operational gravel mine and abutting parcel are each under your ownership (Eagle Cliff Northwest) and are relatively flat in grade along a flood terrace plain of the Cowlitz River. The site is about 5 miles southwest of the town center of Toledo, Washington.



### Site Geology

As published in the Washington Division of Geology and Earth Resources online geologic map survey, the site is within a Quaternary alluvium deposit of the Cowlitz River floodplain. The geologic map inset is shown below. From inspection of the local water well logs and open gravel pit pond levels, the local groundwater is relatively shallow at about 8 to 15 feet below surface, as seasonally influenced by fluctuations in the Cowlitz River levels.



We reviewed the available water well logs from the Department of Natural Resources online well survey data, and from the two wells more recently drilled nearest to (or within) the 17-acre study parcel. You provided us a copy of these two well logs as they were not available at this time from the online database. The two most recent well logs were completed by Edgell Well Drilling Inc., and are attached to this letter. The nearest published well log is also attached, and was installed in April 2012 by Edgell Drilling at your 40 acre operating mine abutting to the south.

We find from the data in the logging reports of the drilling that the local subsurface would validate the presence of relatively clean sand and gravel deposition to depths of 55 to 60 feet below ground surface. This is consistent with our inspection of the raw materials currently being extracted near a depth of 37 feet on the 40 acre parcel. From our site visit on February 24, we have attached two photographs of the raw product material.

### Conclusions

Based on the above site and geologic mapping evaluation, we can conclude that the proposed resource land opt-in for expanding the existing gravel mine into the north parcel of 17 acres will comply with the criteria set forth under LCC 17.30.720. There is a strong basis to form this determination based on the well log data, reviews of current extraction material at the current gravel production on the adjacent 40 acre parcel, and our study of geologic and topographic mapping of the area. In addition, the 17 acre



parcel is also bounded on the opposite side (north) by a parcel also zoned as mineral resource land.

The current gravel mine operation on the 40-acre parcel is ongoing and has mined to a depth of about 37 feet, with a target of about 50 feet at completion. As projected from the average production values demonstrated thus far, we believe a reasonable valuation of \$1.0M to \$1.2M per acre may be assigned to the abutting 17-acre parcel. If conservatively assuming a 30 percent volume deduction for slopes, setbacks and staging, the total, long term mineral resource value for the resource opt-in area of 17-acres if mined to a maximum 50 feet depth would be about \$10 million.

### ***Statement of Qualification***

Mr. Randall Goode, currently Licensed Washington Professional Engineer, has conducted the site above site evaluation and authored this report. He has reviewed the applicable geologic publications, water well logs, field production observations and other related records. He has over 20 years of experience in the geotechnical profession, including multiple projects focusing on subsurface exploration and engineering geology in the greater southwest Washington area.

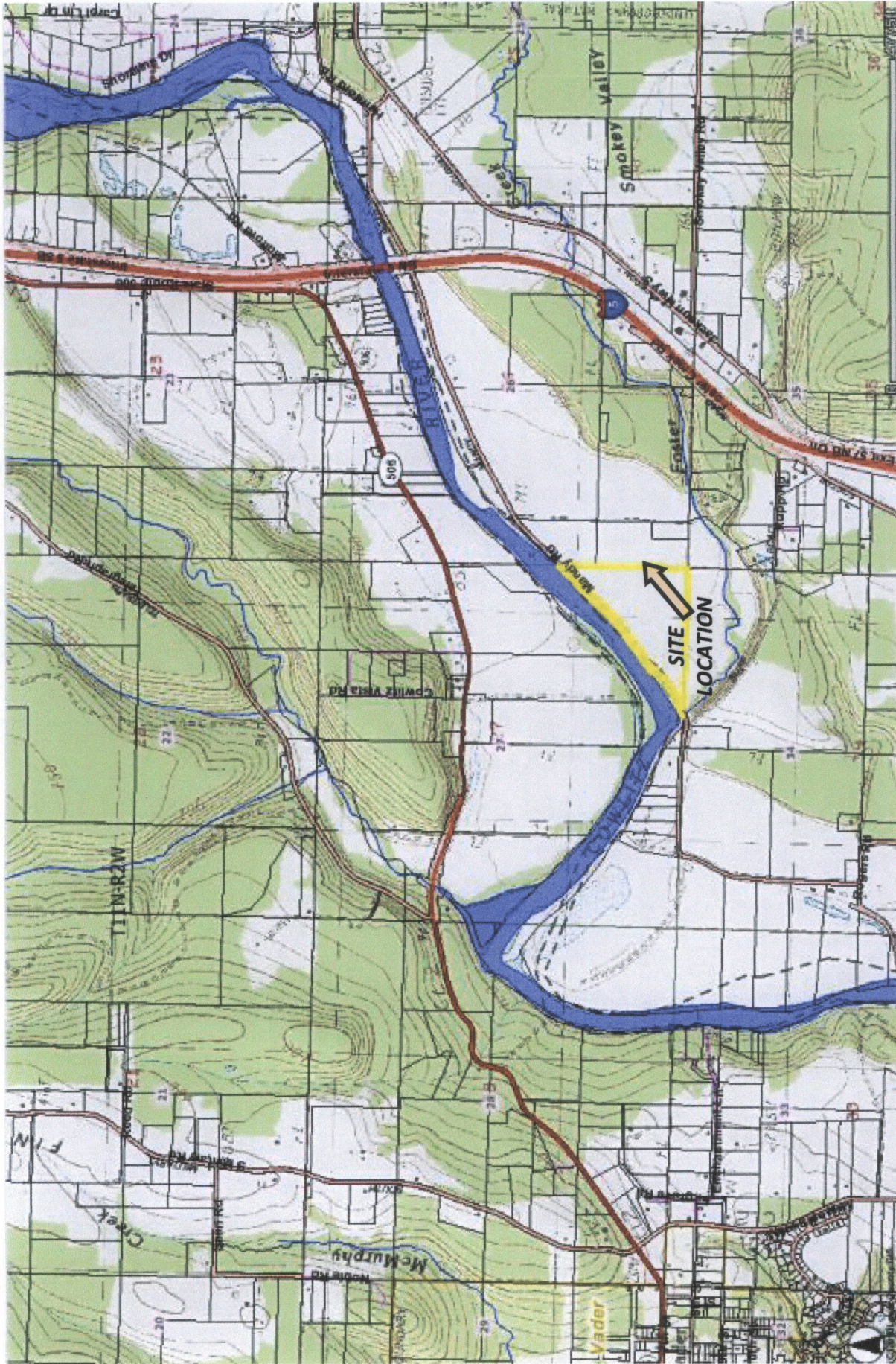
Sincerely,  
STRATA DESIGN, LLC



Randall Goode, P.E.

ATTACHMENTS: Topographic Vicinity Map; Photographs





FIGURE

1

SITE VICINITY MAP



## PHOTOGRAPHS



Feb 24, 2014 photo of the raw deposits from drag the line extraction at approximately 37 feet below grade at the adjoining 40 acre parcel.



Feb 24, 2014 photo of the submerged extraction pit on the 40 acre parcel, with raw material (non-screened) shown along the pond edge.

Original - Ecology, 1<sup>st</sup> copy - ~~unwax~~, 2<sup>nd</sup> copy - driller

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* \_\_\_\_\_

Notice of Intent No. WE14351

Unique Ecology Well ID Tag No. APL-179

Water Right Permit No. \_\_\_\_\_

Property Owner Name BREDFIELD, JOHN

Well Street Address 400 BLOCK MANDY RD

City TOLEDO County LEWIS

Location SW 1/4-1/4 SW 1/4 Sec 27 Twn 11 R 2 EWM ☐ circle  
or ☒ WWM one

Lat/Long (s, t, r)      Lat Deg \_\_\_\_\_ Lat Min/Sec \_\_\_\_\_

still REQUIRED ) Long Deg Long Min/Sec \_\_\_\_\_

Tax Parcel No. 012524000000

Formaltee: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSARY).

[illegible]

Start Date 4-13-2012

Completed Date 4-16-2012

Diller/Engineer/Trainee Name (Print) Tim Lepharm

Driver/Engineer/Trainee Signature *Tom L. Miller*

Driller or trainee License No. # 2163

Drilling Company **RON EDGELL WELL DRILLING INC**

Address PO BOX 695

City, State, Zip CASTLE ROCK, WA 98611

Contractor's \_\_\_\_\_

Registration No. RONEDWD065D1 Date 4-29-2012

Ecology is an Equal Opportunity Employer. ECV 050-1-20 (Rev 2/03)

IN TRAINEE.

Driller's Licensed No. \_\_\_\_\_

Driller's Signature \_\_\_\_\_



## well #3

## APL-180

0	10.5	Clay Sand Brown
10'6"	18	Gravel w/Sand Brown
18	23	Gravel w/Sand Rust Brown
23	26	Gravel w/Sand Grey
26	34	Sand w/Gravel Grey
34	36	Gravel w/Sand Grey
36	43	Sand Gravel Grey
43	52	Gravel w/Sand Grey
52	55	Sand w/Gravel Grey
55	61	Gravel Large w/Sand Brown
61	64'6"	Gravel/Sand Grey
64'6"	67	Sand Fine Light Grey

## Well #4

## APL-181

0	8	Clay Sand Brown
8	14	Gravel w/Sand Brown
14	16	Clay w/Sand Brown
16	20	Gravel w/Sand Grey
20	36	Sand w/Gravel Grey
36	39	Gravel w/Sand Grey
39	44	Sand w/Gravel Grey
44	48	Gravel w/Sand Brown
48	53	Sand w/Gravel Grey
53	59	Sand Fine w/Gravel Large Light Grey
59	61	Siltstone Light Grey

WELL 2<sup>nd</sup>~~11/1/10~~

STOE	0-13	SANDY	Silty	CLAY	Brown
20-4	13 14	SAND	Fine		Green
20-1	14 26	GRAVEL	w SAND	Br	<del>CLAY</del>
20-6	26 47	SAND	w/ GRAVEL		Gray
	47 53	GRAVEL	w SAND		Gray
	53 54	CLAY	Sticky		Brown
	54 58	CLAY	Sticky		Lt. Gray